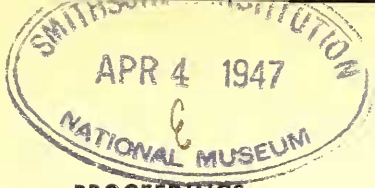


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NEW OWLS OF THE GENERA *OTUS* AND
GLAUCIDIUM

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When the author described *Otus vinaceus seductus* (Proc. Biol. Soc. Wash., 54, 1941, 156) from Michoacán, obviously a connecting link between the *Otus vinaceus* and the *Otus cooperi* groups, he suspected there might be an undescribed form of *Otus cooperi* in southern Mexico, bridging the gap between them. Consequently, when the indefatigable efforts of Mario del Toro Avilés resulted in the securing of two specimens at Mazatán, Chiapas, on the Pacific Coast near the border of Guatemala, it was no surprise that they represented the anticipated link between the two groups, which is herewith described:

Otus cooperi chiapensis, subsp. nov.
Chiapas Cooper's Owl

Type.—Male adult, number 37469, collection of Robert T. Moore; Mazatán, Chiapas, near sea level; June 29, 1943; collected by Mario del Toro Avilés.

Superspecific characters.—Although possessing characters of the *Otus vinaceus* group, it is nearest to *Otus cooperi* (Ridgway), differing in (1) having the sides and the upper breast marked with Amber Brown² blotches, divided by a black streak; (2) the lighter portions of the bars across the retrices much darker, more uniform with the darker portions of tail; (3) the pairs of light buff spots on each side of the black streaks on the upper parts more indistinct and hardly discernible; (4) the under wing coverts less heavily marked with hastate or rhombus-shaped brown spots—all of the above-mentioned characters resembling similar ones of the *vinaceus* group. It differs from both *O. cooperi* and *O. vinaceus seductus* (the nearest forms geographically to the south and the north respectively) in (5) having the alternating dark and light quadrate spots on the outer webs of the primaries much nearer the same color and not so sharply contrasted with each other; (6) the brown band of blotches posterior to the auricular area (so called nuchal collar) non-existent, or nearly so; (7) the sides of face and the whole area posterior to the auricular area, the pileum, particularly the lateral mar-

¹Contribution from the California Institute of Technology, Pasadena, Calif.
²Names of colors in this paper, when capitalized, are taken from Ridgway's "Color Standards and Color Nomenclature," 1912.

gins and nape covered with a much greater amount of hoary whiteness, very different from the black-streaked-brown appearance in true *cooperi*; (8) the herring-bone cross barring of the streaks of both upper and lower part (detectable in both the *cooperi* and *vinaceus* groups, and very conspicuous in the *Otus asio* group, especially *O. a. sortilegus* of Jalisco) almost completely non-existent. However, it has the other characters of *cooperi*, not possessed by the *vinaceus* group (with the exception of *O. v. seductus*, which approximates some of them), strongly marked, such as the completely unfeathered and merely bristled toes (approached by *seductus*); the narrower black streaks on the under parts; the browner (more reddish) general coloration of the upper parts; the more vinaceous (Pinkish Cinnamon) tone of the tiny dots over practically all the under parts; the very pale grayish brown auricular area and the bars across the tail being inverted V-shaped instead of horizontal, and the tail less than half the length of the wing. The eyes are given by the collector as yellow.

Range.—Known only from the male and female specimens in the Moore Collection, taken at Mazatán, Chiapas, near the Pacific Ocean in the Arid Tropical Zone of the Tehuantepec Biotic Province. However, a re examination of the specimen reported as *cooperi* by the authors of the *Biología Centrali-Americana* (Aves, 3, 20) from Cocoprieto on the Isthmus of Tehuantepec, may prove that *chiapensis* is also found in the same zone in the state of Oaxaca.

Measurements.—*Male* (type): Wing 175.8, Tail 85.8, Middle toe minus claw 17.4 millimeters, and *female*: Wing 172.5, Tail 88.1, Middle toe minus claw 15.8 millimeters.

Specimens examined.—*Chiapensis*—Chiapas: Mazatán 1 ♂ 1 ♀ (June). *seductus*—Michoacán: near Apatzingán 1 ♂ (Type), Chinapa 1 ♂. *O. v. vinaceus*—Sinaloa: 1 ♂ 1 ♀; Chihuahua: Durasno 1 ♀ (Type). *O. vinaceus sinaloensis*—Sinaloa: 1 ♂ (Type, breeding); Sonora: 6 specs. *O. asio sortilegus*—Jalisco: near Atoyac 1 ♂ 1 ♀ (Type, breeding). *O. asio suttoni*—8 specs. from Aguascalientes to Durango. *cooperi*—Costa Rica: Esparta 1 ♂ 2 ♀ ad.

Remarks.—Since the description above emphasizes the differences between the *vinaceus* and the *cooperi* groups by pointing out the resemblance of *chiapensis* to one or the other, it is necessary to re-state here (see "Three New Races in the Genus *Otus* from Central Mexico," Proc. Biol. Soc. Wash., 54, 1941, pp. 158-159) the characters which the *vinaceus* and *cooperi* groups have in common, which are lacking in the *Otus asio* group: (1) the peculiar vermiculation consisting of very fine dots on almost all of the under parts, generally referred to as vinaceous, but which grows deeper in tone (towards Pinkish Cinnamon) as we proceed south from true *vinaceus* of southwestern Chihuahua to *O. v. seductus* of Michoacán and thence to *chiapensis* of Chiapas and true *cooperi* of Costa Rica; (2) medium large toes and feet—smaller than those of the *guatemalae* group, but larger than those of the *Otus asio* group; (3) the toes much less covered with true feathers than in the *Otus asio* group, showing less feathering as we proceed south and with no feathers whatever (only bristles) in *chiapensis* and true *cooperi*; (4) size becoming larger as we proceed south, but the largest form of all being *O. vinaceus seductus* of Michoacán.

Aside from the above considerations of intrinsic characters, another

reason for detaching the *vinaceus* group from the *asio* group, is the occurrence of a characteristic race of the *asio* group, namely *sortilegus*, showing no approach whatever to the *vinaceus* group, yet occurring right in the middle of the general range of the *vinaceus-cooperi* groups, namely, in central Jalisco.

Only the male type of *chiapensis* has the blotches of Amber Brown divided by a black streak, the female possessing only a vestigial remnant of this character.

The accretion of thirteen new specimens of the rare species, *Glaucidium minutissimum* from the states of Nayarit, Jalisco, Guerrero and Morelos, has permitted a slight revision of the range of *Glaucidium minutissimum oberholseri* and the description of a new form from northern Guerrero and Morelos:

Glaucidium minutissimum griscomi,³ subsp. nov.

Balsas Pygmy Owl

Type.—Male adult with sex organs enlarged, number 28814, collection of Robert T. Moore; El Rancho Protrero de los Indios, 12 miles south of Zirandaro, Guerrero, Mexico; altitude 1,200 feet; May 31, 1941; collected by Chester C. Lamb.

Subspecific characters.—Nearest in the gray phase to the same phase of *Glaucidium minutissimum oberholseri* Moore of the mountains of central Sinaloa but differing in having (1) back and scapulars much grayer; (2) wing-coverts and primaries paler; (3) spots on pileum and region posterior to auricular area more numerous; (4) nuchal color across upper back not so prominently marked with white; (5) upper tail coverts paler brown (paler than the dark portion of middle rectrices, instead of the same color as in *oberholseri*); (6) size larger, 11% in tail; (7) white spots on three outer rectrices averaging larger. It differs in the same way from the gray phase of the nearest form geographically, *Glaucidium minutissimum palmarum* of Nayarit, except for size, but to a far greater extent, all of the brown areas both above and below being very much grayer (duller brown) as compared with the rusty brown color of these areas in *palmarum*. The females differ in the same way.

Range.—Arid Lower Tropical Zone of the Rio Balsas Valley, one hundred miles from the Pacific Ocean near Zirandaro and also to the same zone at Xicatlacotla, Morelos, approximately one hundred twenty miles to the east.

Average Measurements in mm. of *Glaucidium minutissimum griscomi*, *oberholseri* and *palmarum*.

Males	Wing	Tail
4 ads. (incl. Type) <i>griscomi</i>	86. (84.2-88.1)	56.7 (55.7-57.5)
5 ads. (incl. Type) <i>oberholseri</i>	80.7 (79.3-82.0)	51.0 (48.6-53.1)
7 ads. <i>palmarum</i>	82.9 (80.0-84.9)	53.8 (52.3-55.9)
Females		
1 <i>griscomi</i>	85.6	56.8
0 <i>oberholseri</i>		
2 <i>palmarum</i> (incl. Type)	85.3 (83.2-87.3)	56.2 (54.5-57.9)

¹Named in honor of Mr. Ludlow Griscom in appreciation of his excellent review of this species and clear interpretation of the relationships of the various forms.

Specimens examined.—*griscomi*, Guerrero: El Rancho Protrero 2 ♂ 1 ♀ (incl. Type), Morelos: Xicatlacotla 2 ♂. *oberholseri*, Sinaloa: Vado Hondo 1 ♂ (Type), Sierra Palos Dulces 3 ♂. *palmarum*, Nayarit: Chacala 2 ♂, Rancho Moloti 1 ♂, Sauta 1 ♂ 1 ♀, Arroyo de Juan Sanchez 1 ♀ (Type); Guerrero: Chilpancingo 1 ♂, El Naranjo 1 ♂. Intergrades *oberholseri* × *palmarum*, but nearer *palmarum*, Sinaloa: Rancho Santa Barbara 1 ♂ 1 im. ♀, Carrizo 1 ♂ 1 ♀. Intergrades nearer *oberholseri*, high mountains of Nayarit: 10 miles northwest from Santa Teresa 5,500 ft. 1 ♂.

Remarks.—The addition to the Moore Collection of this large number of new specimens of this species, always considered very rare, has made it advisable to give a new name to the form of the Lower Arid Tropical Rio Balsas Valley, extending into the state of Morelos, and, furthermore, has necessitated the revision of the range of *oberholseri*. At the time *oberholseri* was described (Proc. Biol. Soc. Wash., 1937, 103-106) the only specimen known from the type locality of *palmarum* on the sea coast just south of San Blas, Nayarit, was the Type itself. This new collection provides five specimens all from within a few miles of the type locality and proves that the type of *palmarum* is not uniform with this new series, although they confirm all of the characters given in the original description of *oberholseri* except one minor one, *e.g.* the alleged large area of white on the throat in *oberholseri* which is equally characteristic of this series of *palmarum*. They also reveal that specimens, formerly considered to be *oberholseri* from Rancho Santa Barbara and Rancho Picacho in the lower mountains of extreme southeastern Sinaloa, which, at the time were perceived not to be typical, are intergrades between *oberholseri* and *palmarum*, but nearer *palmarum*. These were cited in the original description as *oberholseri*. The change eliminates the one male from Rancho Santa Barbara and the immature female from Rancho Picacho, so that today we have only four males of typical *oberholseri* (no females), except for one male from the intergrading area. Therefore, the range of *oberholseri* is now restricted to the Arid Upper Tropical Zone of the mountains of central Sinaloa between the altitude of 1,000 and 3,500 feet but reaching 5,500 feet in the intergrading area. The range of typical *palmarum* remains the same, *e.g.* confined to the Lower Humid Tropical Zone of Nayarit, extending south through the lower mountains to Chilpancingo, thence to Naranjo in extreme southeastern Guerrero.

Griscomi seems to occupy a still different zoological niche, that of the Lower Arid Tropical Zone of the very hot Rio Balsas Valley, extending east via its source streams into Morelos. *Griscomi* extends higher across the border of the Upper Arid Tropical Zone since the altitude of Xicatlacotla of Morelos is about 2,800 feet. This extraordinary extension to the east of the range of the species *minutissimum*, cuts across the range of *Glauucidium gnoma* and throws into question the proposed conspecificity of these two species. Still more convincing evidence in this same direction are two specimens of each species in the Moore Collection taken within a few miles of each other near Santa Teresa, Nayarit, and at the same approximate altitude between 5,500 and 6,000 feet. Neither one shows the slightest approach in characters to the other.

The above-mentioned specimen of the *minutissimum* group occurs in an area of intergradation between *oberholseri* and *palmarum*, which extends for about eighty miles at the medium altitudes between Rancho

Santa Barbara, Sinaloa (2,500 feet) and Santa Teresa, Nayarit (5,500 feet). The Moore Collection has five specimens from four different localities in this area, three of these birds nearer to *palmarum* and two nearer to *oberholseri*, so that it is a "toss up" which name should be given them. A larger series from the same area might well group these birds with *oberholseri* rather than with *palmarum*, which would be anticipated by the relatively high altitude at which they were taken.

Considered as a whole, there are only two known phases of this species of Pygmy Owl—the gray and what in other owls would be called the intermediate—the gray predominating in *griscomi*, in which race no specimen can truly be called intermediate. Of the four specimens of *oberholseri* only one is in the intermediate phase and this individual has about the same depth of color as the gray phase of *palmarum*. Of the nineteen specimens of the species in the Moore Collection, only four represent the intermediate phase, one in typical *oberholseri*, two in typical *palmarum* and one from the area of intergradation in the mountains.

Apparently, all three of these races breed in the month of May for we have May specimens in breeding condition of all three. In the case of *griscomi*, a female, number 28813, was collected on May 31, 1941 and contained large eggs. In other words, we have proof of *palmarum* breeding at sea level, of *oberholseri* in the Sierra Palos Dulces, central Sinaloa at 3,500 feet and of *griscomi* near Zirandaro, Guerrero at 1,200 feet. The iris of *griscomi* is reported by the collector as yellow.